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A SIMPLIFIED MUSICAL NOTATION

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With an Introduction

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INTRODUCTION

The complications of musical notation have been for generations the despair of students, teachers, theorists, and executants. Difficulties attendant on reading music in various keys and clefs, in correctly performing elaborate groups of chromatic notes, and in selecting, for composition, one enharmonic use as being more suitable than another—these, with other difficulties, have not only retarded the progress of musical education, but have actually prevented multitudes from coming into direct association with music. It is indeed paradoxical that music, which, of all the arts, makes the most instant appeal, should have so hedged itself about with complicated and confusing symbols. By a process simple, logical, and musically sound, Professor Huntington has destroyed the terrors of chromatic notation.

Many persons reading the title of this article and observing the author to be by profession a mathematician will say, " This is probably some scientific speculation. There is no chance that our notation will be changed, so why read all this?" But open-minded and intellectually honest musicians will read these paragraphs, and will ask themselves a very different sort of question. A. T. DAVISON

A SIMPLIFIED MUSICAL NOTATION

THE purpose of this paper is to present a new musical notation which, while retaining all the excellent features of the present notation, would, it is believed, greatly simplify the processes of reading, studying and composing musical scores.

The plan is not one of the artificial mnemonic devices of which the literature is full,[1] but is based directly on the fundamental principle of modern music, namely, the equi-tempered

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[4] For a critical account, see C. F. Abdy Williams, " The Story of Notation," Scribners, 1903.

scale. This scale, introduced by J. S. Bach about two centuries ago, and now dominating all musical composition, makes use of *only twelve notes in each octave,* these twelve notes dividing the octave into twelve mathematically equal intervals, called semitones. Now, if we draw an ordinary five-line staff with one ledger line, we see that exactly twelve notes can be accommodated on the lines and spaces of such a staff. *What is then more natural than to assign one place on the staff to each of the twelve notes of the scale, thus doing away with all "sharps" and "flats," and representing every musical interval correctly to the eye as well as to the ear?* This, in brief, is precisely the plan here proposed.

The details are easily completed. We assign the notes commonly known as C, C♯ or D♭, D, etc., to the places indicated in Fig. 1.

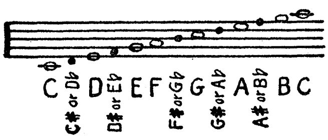


Fig. 1.

In speaking of the note "C♯ or D♭" in conversation, either name may be used indifferently, since the two names (in the modern temperament) are simply synonyms for the same note. But in reading or writing a score, on the proposed plan, this single note is represented by a single degree of the staff, unmodified by any sharps or flats. In other words, every note used in modern music has one and only one place on the staff, and every degree of the staff represents one and only one note.

Moreover, the proposed representation of every octave is simply a repetition of every other octave, so that no "clefs" (treble, 𝄞; base, 𝄢; tenor, 𝄡; etc.) are required. The successive octaves from low bass to high treble may conveniently be numbered consecutively from 1 to 8, "middle C" falling between the fourth and fifth octaves, as shown in Fig. 2.

This Fig. 2 illustrates how clearly the range of pitch of any musical instrument can be exhibited in the new notation. The striking contrast between the old method and the new in this respect is shown in Fig. 3, the data for which are taken from Cecil Forsyth's "Orchestration" (Macmillan, 1914).

The chief merit of the new plan is that *every musical interval, and hence the structure of every musical chord, is repre-*

sented correctly to the eye by the relative distances between the notes on the staff.

For example, the intervals in Fig. 4*a* and Fig. 4*b*, which look so different in the old notation, are really equal intervals, represented in the new notation as in Fig. 4*c*.

This direct correspondence between the ear-interval and the

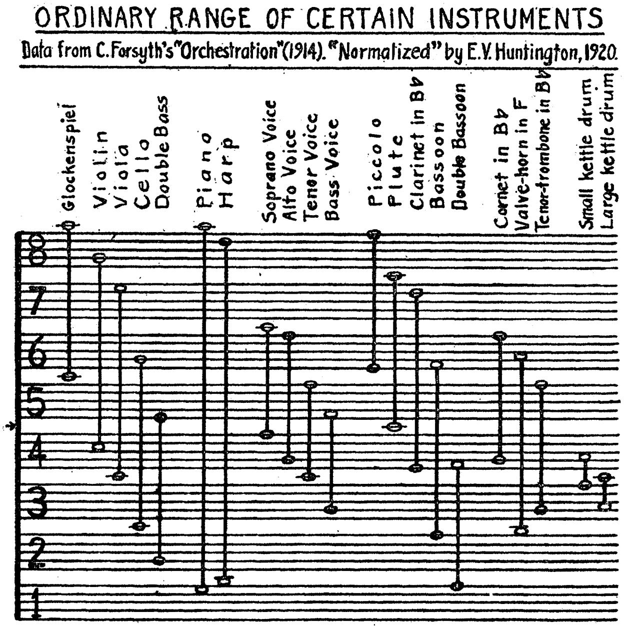
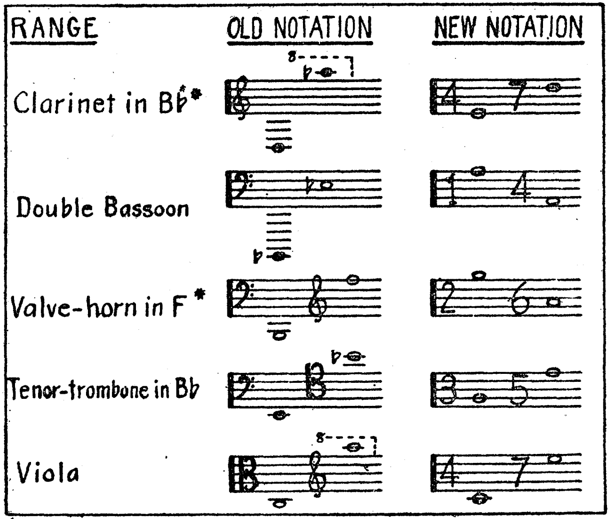


Fig. 2.



(*Actual sounds, not transposed) *Fig. 3.*

eye-interval would seem to be a great advantage in sight-reading, both for singers and for players. In particular, the labor of *transposition from one key to another* is greatly simplified in the new plan; for, since the relative position of the notes is unchanged, the process of transposition may be regarded as merely a shifting of the background of lines and spaces, with no thought of key-signatures, accidentals, etc., that are now so troublesome. A similar remark applies to the transposed scales which are often used in writing for special instruments, to facilitate fingering.

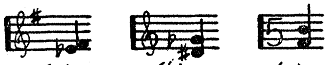

(a) (b) (c)

Fig. 4.

These are all the points that need be mentioned in order to make the scheme of the new or "normalized" notation clear. No change is made in the present mode of indicating the duration of a note (quarters, ♩; eighths, ♪; etc.) or the time (3/4 time, 4/4 time, etc.) or in the present symbols indicating expression (f, pp., pedal, etc.). The important change is the abolition of the "sharps" and "flats" which have been the trial and perplexity of pupils for so many generations. These sharps and flats, whether occurring as accidentals, or in the key-signature, may now be recognized as merely the result of an attempt, historically explicable, but necessarily unsuccessful, to crowd twelve notes into seven degrees of the staff, instead of providing each note with its own place.

In order to show the great simplification that the new notation would bring with it, a few bars from a complicated modern score[2] are here given in both the old and the new notations (Fig. 5). A further illustration is given in Figure 7.

It will be observed that much vertical space required in the old notation to allow for ledger lines between the bass and treble staves is saved in the new notation; also, some lateral space required for accidentals may be saved, without danger of crowding the notes. Hence, in spite of what one might expect when eight degrees of staff are expanded into twelve, the total space required on the page is only slightly increased by the new plan—certainly not more than twenty per cent. This slight objection would appear to be much more than offset by the advantages secured.

Moreover, in the case of band music, where condensation is

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[2] Maurice Ravel, "Valses nobles et sentimentales," I, page 3; A. Durand & Fils, Editeurs, 1911.

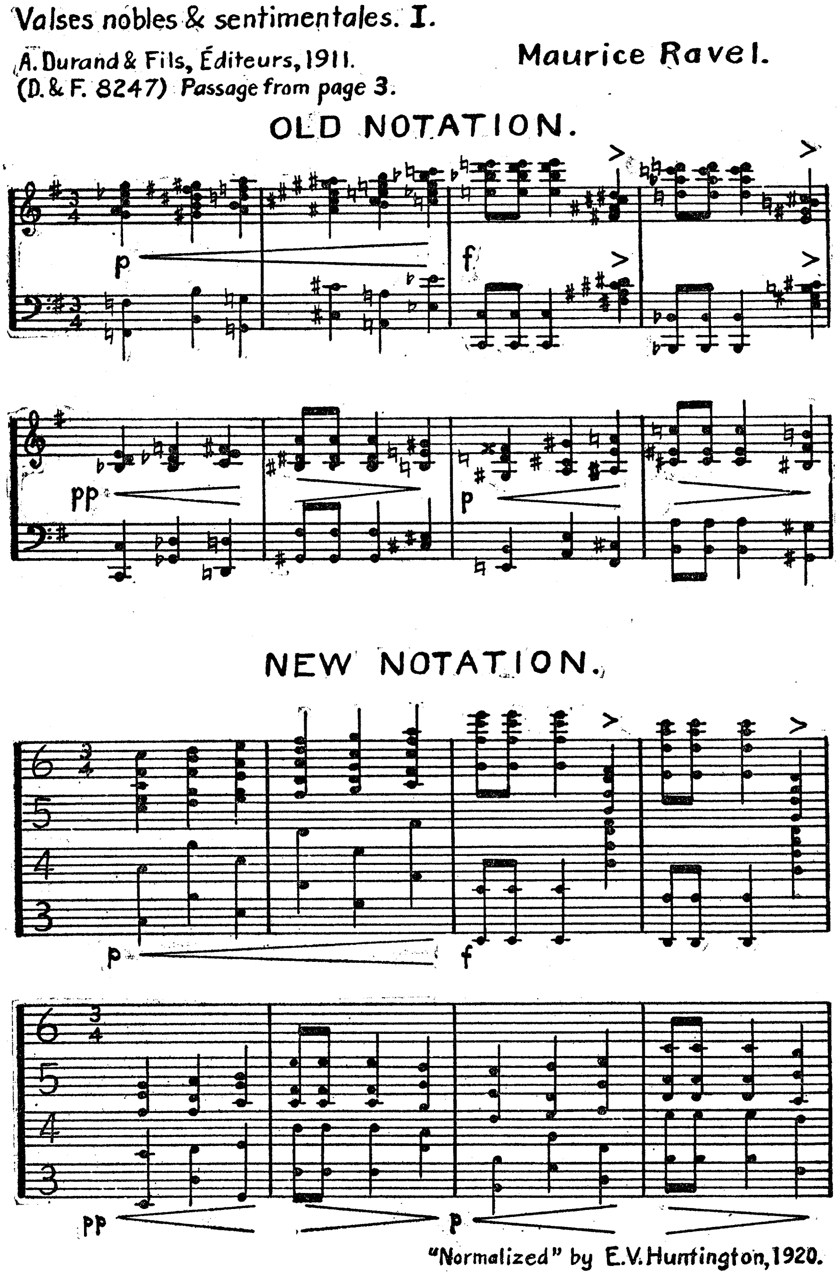
Valses nobles & sentimentales. I.
A. Durand & Fils, Éditeurs, 1911.
(D. & F. 8247) Passage from page 3.
Maurice Ravel.
OLD NOTATION.
p
f
pp
p
NEW NOTATION.
6
5
4
3
3/4
p
f
pp
p
"Normalized" by E.V. Huntington, 1920.

Fig. 5.

especially desirable, the score for each instrument can, by simple devices, be compressed into a single staff.

What has been said so far has had reference to the reading of a musical score by the performer.

It remains to point out the effect of the new plan on the problems of teaching and analysis.

For purposes of elementary teaching there would seem to be great advantages in the principle of "one sound, one symbol." To avoid rhythmic complications in scale singing, however, the names of the notes should be monosyllabic. It may be desirable, therefore, to call the twelve notes of the scale by the last twelve letters of the alphabet, pronounced as follows:

O P Q, R S T; U V W, X Y Z
Oh Pee Que, Are Ess Tee; You Vee Dub, Ek Eye Zee.

The scale of C major would then be sung as

O — Q — S T — V — X — Z O

or, if preferred, the "do, re, mi" syllables could be used with fixed pitch, as in the present French schools:

do — re — mi fa — so — la — ti do

The details of such matters must of course be left to the teachers.

For purpose of analysis, the present names, "C," "C ♯ or D ♭," "D," etc., may of course be retained if preferred.

It is on the side of analysis that the only serious theoretical objections to the new plan are likely to be raised.

For one thing, the guidance to key-changes which accidentals in the present scores now provide would be lacking in the new plan; again, the fine distinctions known as enharmonic changes would cease to have any significance.

In reply to these objections, it may be said that whatever is actually present in the music as heard by the ear is faithfully reproduced in the new notation as seen by the eye. Hence it follows that the new notation omits nothing which is really essential for the analysis of the music as sound. *All that it discourages is an analysis of the symbolism of an obsolete notation.*[3] As Grove's Dictionary states, all our present rules for notation are based on the old Mean-tone temperament which made a real distinction between C♯ and D♭. They do not apply to the modern equal temperament in which these two symbols represent exactly the same sound. Now what the new notation does is to register accurately the sounds which are actually heard to-day. Any desired analysis of the relations between those sounds can therefore be carried on entirely adequately in the new notation.

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[3] As a matter of fact there are no "rules" for chromatic notation. Even as early as Beethoven one finds the chromatic scale variously notated in the same composition. The question of the employment of C♯ or D♭ is usually a matter left to the whim of the composer.

Moreover, the analysis of the relations between the actual sounds would be really easier in the new notation than in the old. For, in the new notation, on account of the direct correspondence between the ear-interval and the eye-interval, the structure of the chords that are being analyzed may be immediately recognized by their geometric "shape." In fact, a beginner might have bits of celluloid or tracing paper, marked with certain standard configurations, to use as a sort of touchstone to apply to any chord he might wish to examine.

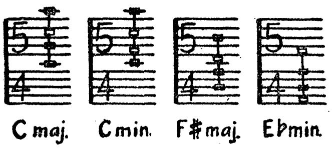


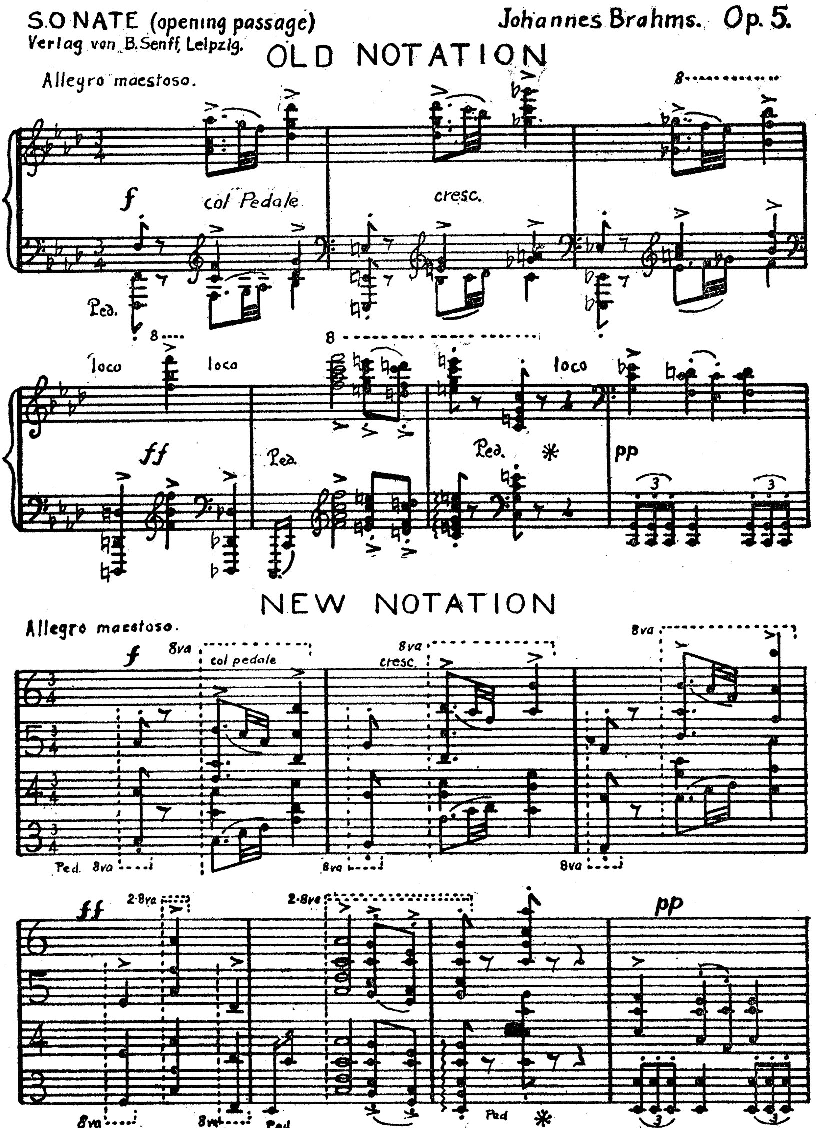
Fig. 6.

Finally, it should be noted that any composer who desires to record the key of any composition can do so more readily in the new notation than in the old. Thus, a "key-signature," though not at all necessary, may be indicated, at any point, by simply noting the fundamental chord of the key, as in Fig. 6.[4]

The supposed objections are thus seen to be more apparent than real. In fact, the new notation might well lead to a new point of view in analysis, a point of view in which all questions of mere "spelling" would be relegated to the background, the entire attention being directed to the study of the actual sounds.

It is not the writer's purpose to discuss at this time the practical difficulties in the way of getting the proposed plan adopted. One need have no illusions as to the seriousness of these difficulties. The first essential would be, of course, to secure the publication of a great collection of standard and school music in the new notation. If this could be done on a large scale, many teachers and pupils would doubtless be glad to avail themselves of the "normalized" scores, the use of which might easily save a large part of the time and expense now required for an elementary musical training. New editions of standard works are constantly being published; it is not impossible that a decisive number of these new issues might

[4] By the addition of an occasional single letter (Ellis's "duodenal"), the new notation can even be made to indicate the notes required for "just intonation" with complete accuracy. A discussion of this phase of the subject is reserved for another occasion.



"Normalized", by E.V. Huntington, 1920.

Fig. 7.

be published in the "normalized" notation. Few steps would do more, in the long run, to encourage the practise, by the people at large, of the art of musical expression.